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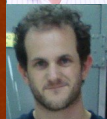
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BULLETIN OF THE MUSEUM OF ZOOLOGY



INSIDE THIS ISSUE:



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- 3— Dr. Dimitrios Koureas relates his experience at the Scratchpads workshop.
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EDITORIAL:

Our third issue of the Bulletin sees a revamped format and increased content thanks to contributions from international guests who have visited our Museum over the last couple of months.

We are very grateful for their enthusiasm and support. The main theme that resonates through the articles, including a short biography of A. R. Wallace – the 100th anniversary of his death is commemorated this year (page 4), the fascinating history of the

H. M. Pendlebury beetle collection (page 5), and the ‘impact’ of our Museum (page 3), is the value of our historical specimens. Their value, not only from the point of view of scientific research, but also as unique cultural heritage was clearly recognised immediately by our international visitors (page 3, 7).

At the Museum we are making efforts to expose and facilitate use of this resource, notably through better records of our collection – new catalogues for

various insect orders and our vertebrate skull and skeleton collections are now on the website.

We also recently hosted visits by groups of local highschool students and another well attended biodiversity seminar, this time on animal ethics. We hope you enjoy reading this latest issue and to see you at the Museum sometime soon.

—John J. Wilson

ONGOING RESEARCH PROJECTS BY THE MUSEUM:

- Mercury accumulation in bats due to construction of hydroelectric dams in Peninsular Malaysia.
- Are butterflies, bats and beetles good biodiversity indicators in Tropical South East Asia?
- Assessment of dung beetle diversity of Kuala Krau Reserve.
- Insect survey in Gerik, Kedah.

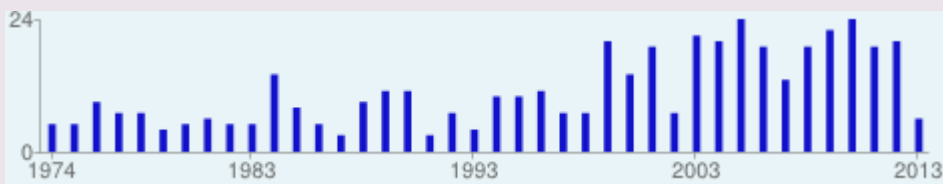




Not all stick insects are camouflaged. A pair of brightly colored *Marmessoidea rosea* mating on the underside of a leaf.
—Photo by Dzulhelmi Nasir.

THE IMPACT OF THE MUSEUM OF ZOOLOGY

A recent note in *Nature* (Winker & Withrow, 2013a) has generated a lot of interest in the scientific blogs and listservs that I follow (e.g. Page 2013). Winker and Withrow (2013b) created a Google Scholar profile for the University of Alaska Museum's bird collection and found it had an h-index "equivalent to an average Nobel laureate in physics". UM, as an institution, is also closely focussed on citations and h-indices as measures of impact so I decided to create a Google Scholar profile for the Museum of Zoology. I have more or less followed the methods of Winker and Withrow (2013b) but there are still probably many more articles to find and add. A lot of articles by Medway will warrant inclusion given his important association with our Museum collection (Sing, 2013). I have limited the articles included in the profile to those by Museum of Zoology staff using Museum of Zoology affiliation or articles using Museum of Zoology specimens (following Winker & Withrow 2012b). The Google Scholar profile is linked through our website under the Publications tab and will also feature the content of our *Bulletin of the Museum of Zoology*. So far the citations count for Museum Zoology is 481, with the vast majority of



Above: Citations per year for the Museum of Zoology

these being citations to the guides to local mammals by Medway. The h-index is calculated as 4, equivalent to many UM professors. I am sure this will rise rapidly as I continue to screen and add the historical articles - please inform me of any articles you know of which should be added. The article citation metrics will also rise as the impact of our current research projects is slowly felt.

—Dr. John J. Wilson

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Sing KW (2013) The Earl of Cranbrook and the Museum of Zoology. *Bulletin of the Museum of Zoology* 1(1):2-3.

Winker K, Withrow JJ (2013a). Natural history: Small collections make a big impact. *Nature* 493 (7433): 480-480.

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THE SCRATCHPADS WORKSHOP



Dimitrios conducting the Scratchpads workshop.

according to their respective research in different Scratchpads modules.

As some side discussions took place during my short visit, I had the opportunity to meet people representing outstanding and very active teams and institutions in Malaysia. They helped me appreciate their interest in tools that facilitate the aggregation and subsequent mobilization of biodiversity data in our big-data world through open access and standardised environments. I admired their passion in promoting the unique fauna and flora of this equally unique country. In a way, this visit genuinely strengthened my confidence in our vision, and for that, but also for their fantastic hospitality, during my stay, I should be grateful.

It was the views, while landing, of the local thriving tropical vegetation that was the first in a series of impressing images and experiences I had during my 4 days stay in Kuala Lumpur. The purpose of the visit was to run a Scratchpads training course organised by our local Ambassador in Malaysia and Senior Lecturer in the University of Malaya, John Wilson.

Scratchpads (<http://scratchpads.eu>) are an online virtual research

environment for biodiversity, allowing anyone to share their data and create their own research networks. With currently almost 10000 users around the world and with more than 580 sites Scratchpads are an ever increasing community holding half a million pages of biodiversity and taxonomic data. The training course attended 15 people, most of them PhD students or early stage researchers. All of the participants showed an increased interest in the Scratchpads environment emphasizing

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ALFRED RUSSELL WALLACE



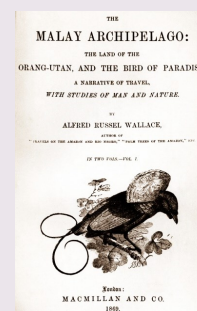
Alfred Russel Wallace (1823 – 1913).

This year marks the 100th anniversary of Wallace's death. Wallace is well known among biologists for conceiving the theory of evolution through natural selection at about the same time Charles Darwin came up with the theory. Wallace went on extensive field explorations in the Amazon Basin and Malay archipelago where he demarcated the Wallace line that divides the Indonesian archipelago into two distinct biogeographic divisions, a western part in which the animals are largely of Asian origin and an eastern part with affinities to the Australasian fauna.

Wallace was one of the leading thinkers of the 19th century and made many contributions to the development of evolutionary theory, including the concept of warning coloration in animals, the Wallace effect, a hypothesis on how natural selection could contribute to speciation by encouraging the development of barriers against hybridization. Wallace's extensive travels made him aware of human activities on the environment, and warned on the dangers of deforestation and soil erosion in the tropics. Wallace is featured as one of the four great biologists in the Museum Seminar Room, along with Darwin, Lin-

naeus and Mendel. He was a social activist who was critical of what he considered an unjust social and economic system in 19th century Britain. His immense contribution to society is embodied in numerous articles on glaciology, anthropology, ethnography, epidemiology and astrobiology, and ten books, among which is "The Malay Archipelago", which he dedicated to Charles Darwin with following words "I dedicate this book not only as a token of personal esteem and friendship but also to express my deep admiration for this genius and his works".

— Dr. A. Sasekumar (Sources: Wikipedia & The Alfred Russel Wallace Website)



Above: *The Malay Archipelago*, a book written by Wallace about the region.
Left: A.R. Wallace in Singapore.

SPECIMEN HIGHLIGHT: LEOPARD CAT

LEOPARD CAT

Scientific name:

Prionailurus (Felis) bengalensis

- * Most widely distributed Asian small cat
- * Solitary
- * Diet: mainly carnivorous
- * Mass: 3-7kg
- * Body length: 44.5-107cm
- * No. of offspring: 1-4
- * Gestation period: 62-75 days

Our museum specimen is a complete skeleton.

Sex: Male (juvenile)
Locality:
Tasik Bera, Pahang
Date collected: 12-x-1961



COLLECTIONS AT THE MUSEUM: THE PENDLEBURY COLLECTION

Being a museum, we house specimens that are of biological and, at times, historical value. As we are now moving forward with our transformation program, perhaps it is time to look back at the oldest specimens in the museum. The Pendlebury Collection of beetles was collected from a period of 1914 to 1939 by systematic entomologist Henry Maurice Pendlebury (1893-1945) and other collectors attached to the Federated Malay States Museum. How the collection ended up in the Museum of Zoology is a rather long story that took a lot of detective work and a little luck.

Very little is recorded of H.M. Pendlebury himself and his publications, if any are still surviving, are near impossible to find. The Butterflies of Peninsula Malaysia, a book that bears his name as one of the main authors, is currently in its 4th edition and has largely been revised by co-authors to the point that it bears little resemblance to his original work. Due to the passing of time, it is likely that Pendlebury the man will remain a mystery. He did however leave us with a glimpse of the biodiversity of colonial Malaya with his collections of beetles.

Most specimens collected during colonial times were shipped from the colonies to the British Museum of Natural History (BMNH), where many still reside to this day. It is likely that the specimens in the Pendlebury collection were retained by local museums such as the Taiping Museum in Perak and the Federated Malay States Museum (FMSM), in Kuala Lumpur. These collections were very much the first natural history collections of the Federated Malay States.

In 1939, Imperial Japan entered World War II and swept through Malaya. In order to protect the FMSM specimens, Pendlebury delayed his own evacuation to move them to the Department of Agriculture. It was a fortunate decision for the collection, as the East Wing of the museum was destroyed in an Allied bombing in March 1945. For Pendlebury however, the decision to save his specimens proved to be fatal, as he was captured by the Japanese in Singapore and sent to a prisoner of war camp. While he managed to survive the experience, the weakened Pendlebury passed away on a flight back to Britain after the Japanese surrender.

The main collection survived in the Department of Agriculture from the beginning of the war until 1955, when a large portion of it was donated by the newly independent Malayan Government to the BMNH. Many specimens in the Pendlebury Collection bear the label "Ex.F.M.S.; Museum; B.M.1955-354", which indicates that it probably part of the 1955 shipment. How it made its way back to the National Museum is still unknown. It was housed in the National Museum until the 1970s when the museum decided to focus on anthropological subjects and chose to discard most of its biological collection.

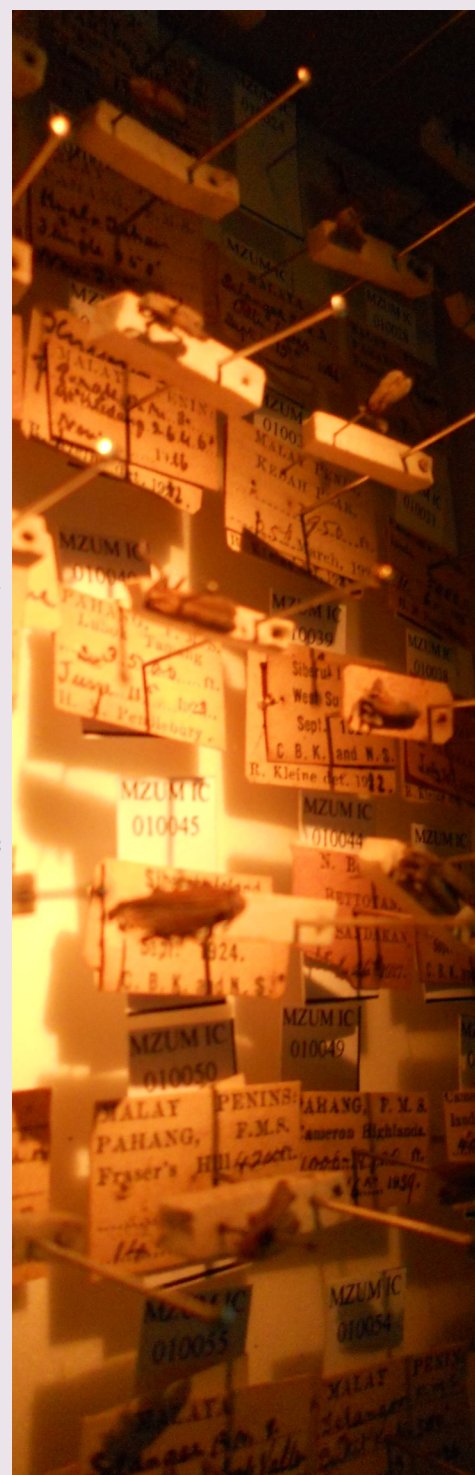
The collection was donated to the then young Zoology Department of the University of Malaya. There the Pendlebury Collection was largely ignored and remained in boxes in the Zoology Department Museum. These specimens survived the consequent reshuffling of departments that resulted in the Institute of Biological Sciences. With the establishment of the Museum of Zoology in 2003, the collection was moved into storage there and it took until 2010 before the specimens were removed from their boxes and catalogued. The full story of the journey of the collection and their historical significance was only discovered in 2012.

A *Xylobanus* (F:Lycidae) collected from Semangko Pass in 1912 turns 101 years old this year, and it has actively participated in the history of modern Malaysia. The Pendlebury Collection survived the colonial era, a World War, post-war recession and famine, a communist insurgency, the politics of a newly independent state and the modernisation of Malaysia. Understanding the historical context of these specimens gives meaning to the term 'natural history'. And in turn, it highlights the role of museums as caretakers of specimens that have been passed down to the next generation after much sacrifice.

— Thary Gazi

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Above: Lycidae specimens from the Pendlebury Collection.

SHARED GOALS

My itinerary began with a visit to an upscale fine arts museum and did not prepare me for a warm welcome and pleasant discussion with a roundtable of bright and cheerful biologists. Their comfortable clothing, inquisitive smiles, thirst for discovery, and research tales were a reminder that biologists are the same everywhere. I was delighted when Dr. Sasekumar, Dr. Wilson, Sing Kong Wah, Lau Chai Ming and Adam Lim suggested I make an addendum to my itinerary and leave the elegance of the museum for a place that many biologists refer to as their second home- the lab.

My tour of the Biological Science Department began with a visit to a laboratory of Prof. Chong Ving Ching. In the company of Dr. Sasekumar, I gazed upon my first giant mud lobster *Thalassina*. Dr. Sasekumar and Adam Lim informed me of the natural ecology of *Thalassina* and their importance in nutrient cycling in a tidal



wetland ecosystem. The crustacean inhabits mangroves, which are formed by a very special association of plants and animals that live in the intertidal areas of low lying tropical and sub-tropical latitudes.

The prevalence of research on the biodiversity and ecology of mangroves at the University of Malaya (UM) brought to mind a natural collaborative connection between Dr. Faiz Rahman and Dr. Rinku Roy Chowdhury in the department of Geography at Indiana University. Their recently funded NASA grant to explore mangroves in the Americas may pave the way for international collaboration between the two research groups. In addition, I think the exchange of ideas and techniques between

the two groups and could enhance the understanding of the mangrove forest biome.

Mangrove forests, a unique ecosystem, are adapted to variable salinity, anaerobic soils and intense sunlight while providing a quiet niche for young marine organisms. The economic importance of mangroves to the palm oil industry, and the effects of industrial practices on the ecosystem parallel some of the research initiatives of Dr. Rich Phillips at Indiana University. Specifically, Dr. Phillips seeks to understand the carbon-nutrient cycling in the wake of anthropogenic disturbances. Moreover, combining efforts of Dr. Bong and Dr. Phillips to elucidate the influence of the interaction of plants and soil microbes on biogeochemical cycling suggest that a partnership to meet common research goals may cross geographic and oceanic boundaries.

A characteristic of many of the individuals I encountered at the University of Malaya was that their studies were endemic to their country, but had a breath of untapped applications. The statistical methods developed by Dr. Khang to estimate average heterozygosity in diploid populations, such as cave planarians (*Dugesia batuensis*), could be readily utilized to analyze population structure of *Daphnia*, a common study subject of some disease ecologist at Indiana University.

Similarly, a major theme in many of the research groups at Indiana University and University of Malaya is disease ecology. The research connections and initiatives that could be generated between the two institutions are far more than can be described in this brief presentation. Therefore, I hope some of the research highlighted in the article will inspire you to probe further into international collaborations centered on research themes of mutual interest. I encourage faculty to initiate contacts so that intellectual wheels can begin spinning, partnerships can be formed, and global progress can be made.

Both institutions are home to a number of museums. Most notably, the University of Malaya is home to an exquisite gem that deserves to be utilized by a broader scientific community and frequented by visitors. The Museum of Zoology is home to nearly 25,000 (24, 616) specimens, which include 20,000 insects, 2,000, fishes, and 1117 amphibians and reptiles, and 603 birds, and 896 mammals. Indiana

University's William R. Adams Zooarchaeology Laboratory is home to smaller and older collection, which consists of 10,000 modern and comparative faunal remains and houses research projects from plains of North America.

Both museums have done a remarkable job of cataloging and preserving specimens. A collection exchange can enhance the initiatives of both organizations such as aiding curatorial research and discovery. The exchange can have the extended benefit of exposing audiences to exhibits they are unlikely to encounter outside their home countries. I encourage the curators of the Museum of Zoology, Dr. Sasekumar and Dr. Wilson, and Dr. Scheiber, the director of ZooArchaeology Laboratory, to begin corresponding so that the first exchange can begin.

A mark of my trip to Malaysia is that it was far too short to explore all the rich resources of University of Malaya, such as the laboratories of 250 faculty in the Biological Institute. I needed more time to explore the Gombak and Jelebu field stations, along with the Rimba Ilmu Botanic Garden, which has unique collection of rare and endangered plants. Similar resources are in abundance at IU, such as the *Daphnia* Genomics Consortium, and the Center for the Integrative Study for Animal Behavior.

Sharing the abundance of field resources of Malaysia and the technological advances of Indiana University can foster intellectual companionship between communities of researchers with different skills and ways of approaching science. The flow of diverse ideas and museum collections can only enhance scientific thinking and strengthen the overall contribution of the laboratories to the international research enterprise. Moreover, international collaborations can enhance dissemination of ideas, increase chances and opportunities for funding, and enrich scholarship. Furthermore, these connections can help understand, preserve, and conserve valuable global resources.

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Klang Gates Ridge, one of the few remaining habitats for the Serow (*Capricornis sumatraensis*). The undeveloped water catchment area can be seen to the left and the much developed housing area on the right.
— Photo by Sugumaran Manickam



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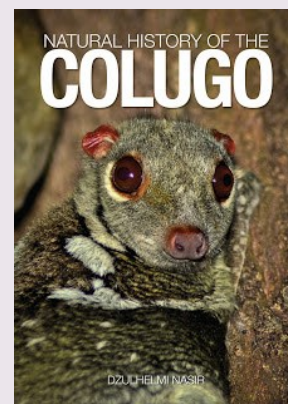
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BOOK REVIEW

Title: Natural History of the Colugo

Author: Dzulhelmi Nasir

Pp. 102

ISBN: 978-967-412-074-0

Publication: UKM Press

Colugos, also inaccurately known as the flying lemur, are certainly interesting animals that receive little attention in both popular science publications and serious scientific studies. This full colour book attempts to cater for both markets and manages the fine balance between being too technical and having too little information. It does not have particularly pleasant prose to read; the book suffers from poor editing as there are plenty of grammatical errors. The first chapter, concerning an introduction to Malaysia, is particularly difficult to read that can be skipped with little loss. The writing improves in the following chapters that cover the morphology, ecology and behaviour of colugos. These chapters serve as a review of colugo literature, but the lack of footnotes makes it hard to track down the origin of the statements made in the book. However, the highlight of the book is the photographs, which clearly illustrate the behaviour of colugos in their natural environment. Recommended for people with an interest in the subject matter.—Thary Gazi

Left: One of the many photos concerning colugos that is featured in the book.

EVENTS

Connecting Biodiversity Collections in the Pacific: Digitization through DNA Barcoding and Informatics.

Please join us in the Museum of Zoology Seminar room for this webinar broadcast live from Fiji on July 10th 10:20-13:20. For more details check: <http://connect.barcodeoflife.net/events/psa12>